





CHAPTER II

WILDERNESS

Snow became a very powerful design element on this film. Our snow isn't just white—it can be whatever color the narrative demands at any given moment for impact. With this white canvas, we can infuse it with blue, green, magenta or any other hue we choose. I call it the "power of white with light."

—Michael Glens, art director

The connection, which should be a magical moment come true, ends in disaster as Elsa's ability to freeze things is accidentally revealed. She flees into the mountains that loom over Arendelle.

Anna hires Kristoff and Sven to guide her through the snowy mountains to reach Elsa, physically and emotionally. Although Kristoff is a skilled woodsman and ice harvester, the stormy Elie goes as far as defect even his knowledge of the boreal forests, from the Chinese-influenced thicket that shelter Hanneli to the intricately patterned woods in *Sleeping Beauty*, the forests in every Disney film have a unique appearance appropriate to the story. The Frozen artists strove to evoke the mountaineous wilderness of Norway in scope and detail. Visual development artist Jim Finn observes: "The landscape, the flowers, the color of the water—everything helps you make the setting feel authentic. You don't want to put Lake Michigan water in a fjord."

But the Frozen crew wasn't making a travelogue. The setting had to be as stylized as the characters; it had to help tell the story. The landscape was buried under a layer of snow that Elsa's magic thickened. But that snow couldn't be just a monotone blanket. As art director Michael Glamo notes, "Snow isn't just white."

"On our field trip, you'd see deep blue shadows cast in the snow because of the fog," Glamo continues. "At sunset, there might be orange-reds falling onto that snow. These things are magical and stunning by nature. I don't have to do anything."

Production designer David Womackley adds, "The snow gives you something you wouldn't get anywhere else: a sense of the bleakness of the map. In some sequences, we want to push the bleakness and the scale. In *Lover of Anne*, the sheer emptiness of the desert gave you a beautiful sense of scale. We have the same opportunity with these huge snowscapes."

That sense of scale enables the artist to make Anne and Kristoff feel a lot physically as they are emotionally. Finn explains, "If you want to make someone feel small or lonely, you put them in a large space. You can use all that snow to make them feel alone in a very desolate place. You're going to have big mountains, big skies, and a lot of space. There are going to be moments in the film where we want the characters to feel they're on their own. There's no castle in the distance. If you see nothing on the horizon, it's scary."

Every tree, rock and snow bank in the forest had to be designed to fit into the highly stylized world of the film. "Mike and David wanted this film to feel design-y, a little more thought out," Finn says. "It's fun to do, but it's more work to design shapes, as opposed to just filling in the space around a character. It's building a stage for the characters. You place a tree so that it works as a negative in a big positive shape. You're designing for shape, because you have such a large area of white—it involves a little more thinking and not just painting something in every corner of the image."

Fairy tales are often environmentally intimate. It is a very rare opportunity to imbue the genre with the kind of scope and scale that Frozen has.
—Michael Glamo, art director







We had a broad variety of trees. Some were more natural and some were very stylized like the trees in the magical landscape. Besides the challenge to make the look believable they had to integrated well with the environments and still be renderable

—Hans-Jörg Korm, look development supervisor



As supervisors, we had the challenge to make the trees look like a wide variety of trees, but also to make them look like a single tree. The trees had to be stylized, but also to be integrated well with the environments and still be renderable.



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Environment modeling supervisor Joe Krusniak, agrees ruefully. "This film has technical challenges, and it has artistic challenges. Everything needs to be art directed and sculpted. It's going to add a lot of geometry and a lot of density to every single set, which doubles the work. They're writing a tool called *stunus* for us that will procedurally create any kind of tree, if we need a certain kind of branch, they'll write a module for us to make that happen. I'm really excited to play with it."

The demands of creating such a complex environment led various crews to work more closely. Character rigging supervisor Carlos Cabral notes, "The effects department provided us with a snow representation when the characters walk through it, they leave footprints. We're also enabling the animators to send their animation off to get rendered. The animation will come back with the hair, fur, cloth, and snow rendered, so they can judge how their work is interacting with the environment."

Effects supervisor Dale Mayeda adds, "We've had one of our effects animators, Ian Coony, live up in the layout department. When a shot is conceived, we put in a representation of the effects. The animators get a rough idea of how much snow might be in the scene; they can respond to the weather conditions. Typically we're not involved until after the animation's completed. They may not know there's a really gusty wind blowing, and their characters may not act appropriately. By having our guy up there, they've gotten a better understanding of what's happening in the shot."

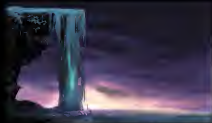




jean-Christophe Moussier / Digital

Snow is an opportunity, because it's a white canvas. It's a lighter's dream, in that the lighting is the color. The local color is minimal at best in all these snowscapes, so it's all about the lighting. We consider it a blank canvas that allows us to actually paint with light. We're having a lot of fun with that.

—Lisa Keene, assistant art director



Lisa Keene / Digital



Bill Schwartz | Original



Jim Fenske | Original



Bill Schwartz | Original



Jim Fenske | Original

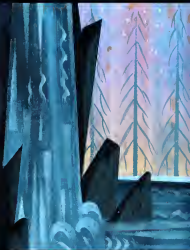
An essential element in creating a believable snowy landscape is the way it's lit. Look and lighting director Mohit Kallianpur states, "Snow is a huge challenge for us. We haven't done this amount before in a movie, and making it look believable is not easy! It can easily go from snow to concrete. The surface techniques we're developing will give us a feeling of light hitting the snow and traveling through it. As light travels deeper into snow, the red wavelengths get absorbed, so it gets bluer. We want to capture these phenomena."

Ron notes, "Depending on the time of year, the sun only goes so high in the sky. We want to make it seem like winter, so the sun will probably lay pretty low on the horizon. Whatever the story and emotion requires, we'll do, even if we have to cheat!"

In earth science classes, students learn about albedo, the amount of sunlight snow reflects; skiers and snowboarders know about it firsthand. Kallianpur continues, "We don't want audiences to have to wear sunglasses because of how much snow we have in a frame. But if snow doesn't have a certain level of brightness, it starts going grey and looking dirty! All of our snow is going to be beautiful and clean."

"During the day, snow can be very high contrast, but we have to give the audience time to rest their eyes," concludes lighting supervisor Jason McCleod. "We have night scenes, we have interiors. On *Hot*, we had one white dog and the background fit pretty well. We have the opposite problem! The entire stage will be white to some degree. It'll be a lot of work to keep the audience interested in the characters and not overwhelmed by the backgrounds."

It would be a crime not to celebrate color in the musical format. Since John Lasseter appreciates my color and design sensibilities, he expects me to deliver something in a striking and provocative way.
—Michael Guimo, art director





Strong color and shape vocabulary was essential for building the design language for *JoJo's Bizarre Adventure: Golden Wind*.
Michael Gleason | Digital



The fully realized world of *Naomi* required a blending of graphic design concepts, combined with the very real properties of light, shadow, texture, and form.

Naomi Bennett | Digital



The scope of the landscape is enormous. There are entire mountain ranges. Lewis Siegel had the idea to build a "Frost Modifier" which has been really useful not only for LookDev but also for EDC. With this new technology we were able to frost the entire world and encase everything in ice.

—Hans-Jörg Klein, look development supervisor



COLOR KEYS





Lisa Keene/Disney

Lisa Keene has the ability to blend her deep understanding of the physical laws of nature with the more elusive qualities of the fairy tale world. Her color keys in *Frozen* provided a solid framework for our lighting department. The keys are both grounding and transporting—exactly what is needed for an elegant Disney fairy tale.

—Michael Gläimo, art director



Kristoff

For decades, the prince was the most difficult and least interesting characters in animated fairy tales. Frozen has a partner for Anna; he's not a prince and he's often less than charming, but he is a hero.

Unlike the handsy elegant princes in many animated fairy tales, Kristoff is tall, powerful, and scruffy. An outdoorsman and a loner, he's a man of few words and fewer friends, except for Sven, his reindeer-pack animal/best bud.

"Kristoff's a tough, quiet, rugged ice harvester. He doesn't relate to humans as much as he does animals," says animator Tony Linseed. "It's fun to portray his emotions and thought process without being too wordy. He's a man of few words. He'll probably be more efficient in his movements, using just enough strength to get the job done. Underplayed."

"Kristoff represents that code of being a man, being very tough, but there's a softer inner core," adds head of story Paul Briggs. "He built this mask and he's worn it for so long, he almost believes in it. Like Elsa, he's hiding something. Anna is going to push him to lower that mask. We had to know who Anna was before we could [figure out who we needed Kristoff to be]."

Kristoff's rough-hewn appearance had to contrast with the courtly elegance of Anna and Hans, yet fit into the same visual realm. "Kristoff" was tough to get in line with the other characters, because I was channeling five action musicals, which have a real paradox: how do we bring that to this rustic character?" Glavin says reflectively. "We relied on the traditional costumes of the Sami people, and used some folk art motifs in his cash, his colors, magenta and indigo, reflect Anna's palette."

"A successful character design entails how a character should behave and act," adds head of animation Lisa Di Salvo. "When we first saw Kristoff's design, we felt he might be a bit too elegant, and we had to make it more real. There's a wear pattern on one knee of his pants because he rests on that knee to secure Sven's reins. As animators, we reverse engineer his looks are probably this heavy, so when he bends down, he'll bend a certain way that will become a personality trait. The characters should feel like they live in this film. They're not characters from any other movie. They respond to the situations in this film."

Supervising animator Randy Haycock drew one test of a very awkward Kristoff trying to make small talk with Anna. "When I'm animating a character, especially a

made character, it looks for traits even identity with," he says. "Krustoff really wants to be an ideal guy, but he's very aware that he's not. So he's trying too hard. He fidgets and takes his hat off and puts it back on. It was always uncomfortable to talking to girls, and got that part of the character."

"I can draw Krustoff pulling his hat on and off, but in CG, you have to make the rig able to do that," he cautions. "The hat becomes a piece of cloth, and you have to decide how to detach it from his head. These tests reveal things that they may need to address later on. They can save time by rigging it to do the things in the test."



Jim Miller / Disney



Will Schwabach / Disney



Adrianus van Kijpstra





Anthony Lee / Digital



Anthony Lee / Digital

Sven

To emphasize Kristoff's unkempt appearance, the scripts are made Sven a more realistic reindeer: a scruffy, unimpressing animal, unlike the prancing pseudo-horses who pull Santa's sleigh in cartoon Christmas specials. "Sven's definitely not regal," says head of animation Lino Di Salvo. "The wear and tear of being out in the wilderness without being brushed lends to the comedy of the character. His brows are very expressive. He doesn't speak, but if he did it would be via his brows."

I didn't know what reindeer actually looked like until I got on this movie. I always thought they were the graceful, powerful creatures I saw in the cartoons. I was wrong. I was lied to! My whole childhood!

—Chris Williams, story artist



ILLUSTRATION BY LINO DI SALVO





Reindeer are a great way
to get things done and
are a great way to get things done.



Paul Briggs | Disney



An earlier design of Krokoff's sleigh. The idea of Krokoff as an ice harvester came relatively late in production's earliest design was modified to make him his own blocks of ice

Clay Laffin | Disney

Olaf



During their trek through the ice and snow, Anna and Kristoff encounter Elsa's formidable snow-guard, and a very different snowman, the ingenious comic relief Olaf.

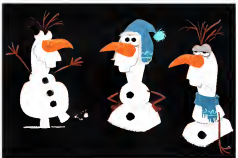
"Olaf basically is an ascribe in truth is materials," explains head of animation Lindy Di Salvio. "At first, we were bending his stick arms and distorting his face too much. He felt like a rubbery cartoon character. Then we thought, if snow moved like snow, how would it move? If a character has wooden arms, why not use that limitation as entertainment?" Now you have the character in situations where he has to pop his arm off to reach something, put it back on, take his head and lift it up to look around, because he doesn't have that flexibility."

The artists on Toy Story complained that Lotso was a difficult character to rig and animate, because a teddy bear has very little anatomy. It's really just an oddly shaped pillow. Olaf has even less anatomy: he's three balls of snow with sticks for limbs.





Bill Schwab | Disney



Bill Schwab | Disney

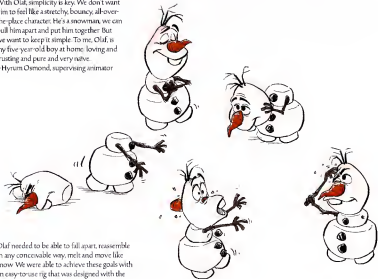
John Lasseter is a big proponent of such in materials. Olaf has sticks for arms, and he has sticks for eyebrows. How far can we push those shapes without the audience ceasing to believe they're sticks? It's a challenge for the people animating Olaf.
—Victoria Ying, visual development



Bill Schwab | Disney

With Olaf, simplicity is key. We don't want him to feel like a stretchy, bouncy, all-over-the-place character. He's a snowman, we can pull him apart and put him together. But we want to keep it simple. To me, Olaf, is my five-year-old boy at home, loving and trusting and pure and very naïve.

—Hyrum Osmond, supervising animator



Olaf needed to be able to fall apart, reassemble in any conceivable way, melt and move like snow. We were able to achieve these goals with an easy-to-use rig that was designed with the animators' needs in mind.

—Matthew Schiller, character technical director



Hugh-John Lee / Disney

"Chris had some ideas about how he wanted Olaf and the other snowmen to look and move early on," says character rigging supervisor Carlos Cabral. "We'd never done a snowman, it required a lot of back-and-forth with animation; we would prototype something, they would test it, and Chris would ask, 'Can we see him come apart, or have his head [sit off]?' All the capabilities the animators wanted are in there to make him move and behave in ways humans and animals don't—and can't."

With his brittle charm and break-apart body, Olaf quickly became a favorite of the crew. Story artist Jeff Rango comments, "He's almost like a baby! He's just been created. He doesn't know that much about the world, so you have to explain things to him you take for granted, just as you would to a little kid."

"He's built in sections, so we play with him getting hit, like his Potato Head," Rango continues gleefully. "You can rip his arms off, you can cut his head off, you can make a hole in him. He doesn't care. I love to torture Olaf, because he's a snowman. He doesn't feel pain. I can abuse him and get paid for it!"

"He feels quite a bit emotionally, but he doesn't feel pain," quipsters fellow story artist Normand Lamay. "So you can play with that and it's okay."

The animators concur that one of the high points of the film will be Olaf's song "In Summer" where he happily imagines himself "doing whatever snow does in summer."

Lead editor Jeff Draheim comments, "Once someone starts singing, you're breaking the bounds of reality: When Olaf sings about a snowman in summer, it's all in his head! We can have a snowman floating in the water! We can have a snowman sitting on the beach. I love the freedom of working on a musical!"



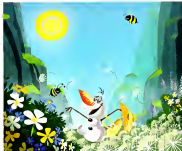
Walt Disney / Disney

"In Olaf's song, we change the look of the backgrounds to make them more Olaf-like," says Rosenblay. "It all takes place within the imagination of a strange little snowman. We figured that a lot of the shapes would be Olaf-like, that he would reduce his world to a more Olaf-friendly place."

Despite the challenges, John Lasseter sum'd up the consensus among the filmmakers when he says, "We have a breakout character in Olaf. The animation of this guy is hilarious. One of the funniest songs I've ever heard is where Olaf, who's always so positive, sings about summer. It's wonderfully naive. It's the perfect blend of a great voice and writing that comes from the personality of the character."

In addition to his vague anatomy, Olaf posed another difficult problem: how to make a snowman stand out in a snowy environment. Layout supervisor Scott Baatle says, "We can make subtle differences of Olaf's texture, so he doesn't just blend in. And we rely on our friends in lighting to make him stand out."

"We're going to push the lighting button," replies lighting supervisor Josh Steele with a roll of his eyes. "It's definitely going to be hard. We're going to have to make sure he separates from the background, using our traditional techniques of rim and bounce and things like that. But you don't want him to feel like a cut-out. He has to look like he belongs there."



Bill Schwab / Disney



Mark George / Disney



Trolls

A series of hairbreadth escapes brings Anna, Kristoff, and Olaf to the realm of trolls. But these trolls aren't the dim brutes in the "Lord of the Rings" and "Harry Potter" books. They're magical creatures whose comical appearance belies their ability to discover the truth hidden in each character's heart.

"I love the trolls," says director Jennifer Lee. "With some encouragement from the songwriters, we convinced everyone they belong in the movie. It'll be a unique angle on Trolls."

"You could easily put a barefoot hairy guy with a big nose in there and call it a day, but what is a Disney troll in this movie?" says supervising animator Malcom Pierce. "How do we make them special, and not generic? It's going to be a lot of fun to find that out in the animation, too. They offer the chance to do some pretty cartoony and magical animation."



Art: Richard E. Dwyer







Daria Izrael / Peresol

The fine details play such an important role in defining the trolls. Interestingly these details on characters are generally the first to go in a crowd context—they're just not necessary. However we could not remove them as it took away too much from their unique character.
—Moe El-Ali, crowd lead



© Disney 2001

and the costume relatively late in the design process. The initial design for the character was a more traditional Chinese dragon, but the design team decided to make it more pig-like, and the costume was designed to be more pig-like. The design team also decided to make the character more pig-like, and the costume was designed to be more pig-like. The design team also decided to make the character more pig-like, and the costume was designed to be more pig-like.



© Disney 2001



Joe Kram / © g h i



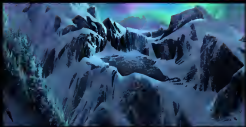
Joe Kram / © g h i



Joe Kram / © g h i







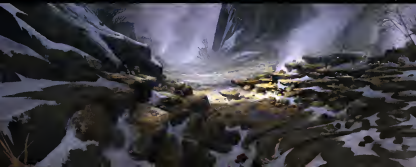
Trail Valley

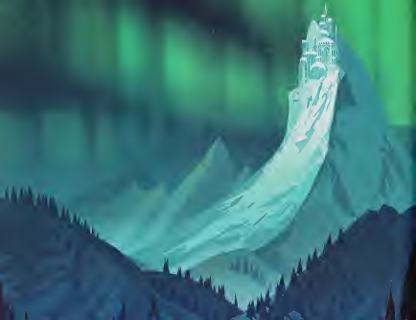
James Pink | Digital

My job is to make sure the background supports what's in the foreground, so we have a good balance of both.

—Jang Lee, visual development artist

James Pink | Digital







CHAPTER III

I CE PALACE

For Elsa's palace, we can model the ice, we can make it look like ice, it'll be all refractive, and it'll probably take the computers days to render. With ice, everything is shiny, sparkly. How do we make sure things don't get too active, and keep the audience looking at Elsa?

—Mohit Kallanpur, look and lighting director

Above in the remote mountains beyond Arendelle, Elsa has created an ice palace: a glittering structure that rises around her. For the first time, she has a home suited to her, the Snow Queen.

One of the main challenges the artists faced was creating believable ice, which is more difficult than snow because it's optically active. Its colors can shift according to what's around it; it can shatter light into rainbow highlights; it can appear almost perfectly transparent or completely opaque. Its surface may be glassy-smooth or etched with patterns. It can reflect its surroundings, or distort them like a fun-house mirror. Ice isn't easy.



renewing John Lasseter's insistence on research and truth in materials, the Disney artists took what amounted to a crash course in meteorology. Effects supervisor Dale Mayeda recalls: "We had Dr. Kim Libbrecht, 'Doctor Snow' from Cal Tech, here to talk about the formation of snow crystals. There's so much amazing stuff about how snowflakes grow, down to the molecular level. Part of our pitch was that nothing ever morphs into a shape or wipes on, everything grows, as it does in nature. Things frozen in storms may assume lyrical shapes that look like something a sculptor created. By doing all this research, we're making magic out of things that actually happen in nature."

A trip to an ice hotel in Quebec City provided further inspiration for Elia's palace. "They built this thing on ice pillars, and you had opaque snow sculptures with a framework of transparent ice and refractive ice pillars for the whole interior, and some of the exterior walls as well," says production designer David Womackey.

"During the day, the hotel's lit naturally, so you can see the natural qualities of the ice and the snow as light goes through them," adds assistant art director Lisa Keene. "But at night, it's a light show. In the bar, they have two or three different colors that they'd fade out, then a new set would come on. It really messed with your depth perception, because it's basically a white and shiny room, but depending on the value of this light, the space would seem to change."

Although the artists agree that having a drink in the bar was enjoyable and instructive, they declined to spend a night in the hotel's frigid rooms. Seeing a real ice structure helped them to imagine a grander palace.

The ice is going to be a challenge, because it provides a lot of activity, perhaps in areas that you might not want. It's so striking and beautiful, like a roomful of diamonds, as an audience you're going to want to look at it. We have to control it so it's always directing your eye the way we want you to look.

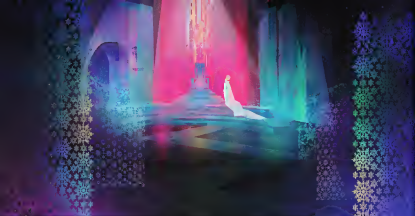
—Lisa Keene, assistant art director



Scott Wassenaar / DigiArt



David Armstrong / DigiArt



John Kolesar/Universal Studios

"There's ice that's clear and very reflective, and there's ice that has frost on it, through which you see nothing," comments visual development artist Jim Finn. "We'll have areas we want clear, so the audience can see distorted images or reflections. There'll also be frosted parts we don't want the viewer to see through. Sometimes it depends on how cold we want it to be. When it's colder, you don't see windows or reflections. It's going to reflect the story and how we want it to feel."

The real properties of ice and snow are ultimately less important than how they can be used to advance the story. Visual development artist Cory Loftis adds, "We have normal ice, just like we have in the real world, then there's that's

magical ice. There are two different sets of shapes and colors. Deep ice has really strong blues as opposed to thin ice, which is gray and white. I focus on the colors and the shapes more than the physical properties of ice."

As Loftis notes, there had to be natural ice and magical ice, but both had to appear equally believable. To keep the audience in the world of the film, the artists felt they had to avoid effects that felt too familiar.

"Michael Guineo and I didn't want to have that 'Christmas special snow,' where a giant snowflake wipes the screen," says effects artist Dan Lund. "Snowflakes are beautiful, but unless you zoom in, you never see them. We use



St. Peter's Digital

It's fascinating to see how beautiful snowflakes are. If you look at the interior, the floor, and the columns, the ice castle is all based upon the science of snowflakes.
—John Lasseter

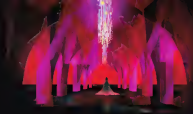


In a live action film, you may have real snow falling on a real actor, and there's believability right off the bat. We're taking believability one step further away by having characters break into song, and build palaces. It demands a higher level of believability, not reality, so that the singing and dancing doesn't take you out of the story. You would think it would be liberating, but it's a bigger hurdle. It makes believability that much more important.

—Marlon West, effects supervisor

Kevin Kavanagh | Digital





Julia Rotensperger | Digital

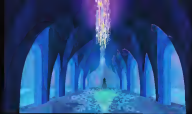
the negative and positive space of snow flurries to create snowflake shapes. We also came up with the idea of having this have a signature snowflake shape. If you saw it anywhere in the movie, you'd know it wasn't nature, it was her."

"Usually effects are just applied to the film at a specific point," he continues. "But after Mike talked about what he hoped the film could be, we came up with effects that had a beginning, a middle, and an end; it felt more like you were plishing a story point than just an effect. That was pretty exciting."

Effects supervisor Martin West adds, "There's been *Phantom* plate dust; there's been characters like *Mo'Nique* in the hoodlums who shoot snow out of their hands. We don't want to imitate something that's been done, but we have to be on the same page with our character animators. Elsa's not shooting ice out of her hands. She's creating things from the particles in the air. What you see on screen is the result of her magic, not the actual magic."

"Whatever those *Sleeping Beauty*-style sparkles make you feel, I hope you feel it again when you see this stuff," counters Lund.

Westonley stresses that the palace itself reflects Elsa's personality and shifting mood: "In Elsa's song, she goes from being angry and aggressive to more content and lyrical. She's gone to the top of the mountain; she's free to be her real self. Her initial reaction may be aggressive, but once she feels content, the ice and snow structures she creates will become more sculptural."



Julia Rotensperger | Digital



William Lee | Digital

Making those visions appear on the screen would require hours of rendering time. Lighting supervisor Hans Rasmussen says, "The ice palace is going to be a major challenge for us, since reflective objects take a really long time to render in CG. Now we're going to light it is another challenge, because it's clear ice. How does it reflect the light?"

"Hopefully we'll find a way to bend the rules of physics so we have a rich, believable world that the viewer feels is ice, but without paying the freight for physical accuracy," adds lighting supervisor Juan Miranda. "The computer offers the ability to pick and choose from the rich complexity of the natural world."



David Womersley / Digital

John Lasseter's director for the film palace was to make it a celebration of the hexagonal motif found in snowflakes. Disney Lee beautifully exploited this concept with all the iconic architectural elements.

LookDev was faced with the challenge of realizing the looks for snow, ice, and the combo of snow and ice. There are so many aspects to the looks as well, such as geometric snow next to painted snow, snow shapes, and snow sparkles. We wanted to make sure the look was stable, renderable and art-directorable.
—Hans-Jorg Keim, look development supervisor



Maya Coates / Digital



Wanda Wang / Digital



Wanda Wang / Digital



Julia Kabanova / Digital



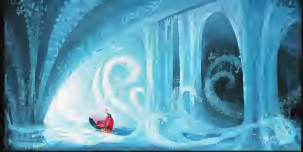
Wes George | Concept

They spent a lot of time looking at snowflakes before we even started on the movie. Elsa's magic ice follows those snowflake patterns, but on a much bigger scale. The way it grows is less chaotic and more melodic or rhythmic.

—Cory Loftis, visual development artist



Wes George | Digital



Olivia Keane / Digital



Olivia Keane / Digital



Julia Kabanova / Digital



David Lowenthal / Digital



Disney Land Digital



Lisa Kneave/City/Ret

John Lasseter's directive for the ice palace was to make it a celebration of the hexagon motif found in all snowflakes. Britney Lee beautifully exploited this conceit with all the interior architectural elements.

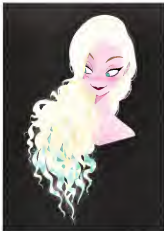
—Michael Glämo, art director



The Snow Queen



mit schwarz! clipart



Walt Disney Lee | Digital

For Elsa's cape, they want to have a crisp, almost unrealistic triangle shape to it. Gravity would probably dip the cape down, but they want to retain it. The question is, can we pull that off and not have it feel distracting.

—Wayne Uten, supervising animator

I had worked with Jin Kim on Tarzan; his draftsmanship is just gorgeous. He's done a lot of character designs, doing some beautiful drawings, then giving them to the CG animators or the modelers so that they can get the appeal of the hand-drawn.

—Chris Buck, director



Jin Kim | Pencil | Original



Michael Chaves / Digital



Chloe Korman / Digital



Art Schwindel / Digital



Bill Schwab | Digital



Bill Schwab | Digital



Bill Schwab | Digital

I love Elsa, because we can make her cold and distant, but our hearts will still go out to her. We'll know she's living in a prison she can't share with anybody. There are some pretty deep themes that come with not being able to admit who you are for fear of how people will react.

—Chris Williams, story artist



Michael Glaimo used the word panache to describe the design sense on Frozen, and that's Elsa to a T, stylish, original, and confident. From the column dress complete with leg slit and train, to the ethereal frost cape that needed to be magical yet believable, to her gorgeous almost flame-licked hair, Elsa makes a statement. She embodies many of the challenges for simulation team Frozen. Strong sleek shapes, that have purpose and clarity and motion, while accenting and supporting the characters physical and emotional performance.

—Keith Wilson, sim lead





Clara Kwak (Character Artist)

I drew from all the fights my sisters had.
—Hyun Osmond, supervising animator



Wolfgang Digital

Rigging both Anna and Elsa presented a unique challenge as both the film's heroines and also as sisters. They both shared a high level of performance and appeal, and yet each sister required subtle refinement to ensure their distinctive personalities emerged.
—Roy Johnson, character technical director



Wolfgang Digital



Will Schwartz / Digital



Colin Hume / Digital



Victoria Ying / Digital



Greg Walker / Digital



Victoria Ying / Digital

Marshmallow



Modeling characters at Disney has always been a challenge. Modeling characters on Frozen like the snow monster was no exception. How do the icicles penetrate into the snow? How hard do we make the edges and plum breaks so they light correctly? How do we prevent this guy from feeling like he was wearing a rubber suit? We must have modeled at least four different monsters before landing this guy. Luckily here at Disney we have some of the best artists in the biz so I'm confident he will put the scare into all the kids watching.

—Chad Stubblefield, character modeling supervisor



Bill Schwab / Disney







CHAPTER IV

RETURN TO ARENDELLE

One of the unique things about the Walt Disney Animation Studios is you have under one roof brilliant hand-drawn animators and artists, and brilliant computer animators. They work together as a team. We've done a lot of development with drawings, the same way we develop a story with drawings.

—John Lasseter, Pixar/Disney chief creative officer

Defusing Hades's plot to seize the throne of Arendelle brings Anna and Elsa together: love and respect triumph over years of isolation and misunderstanding. For the first time since they were little girls, they can share as sisters as the skating rink—joined by Olaf, Sven, and Kristoff. Their adventures brought the mountain man and the princess together, despite expectations that Hades was the perfect man for her. The artists symbolize the sisters' renewed bond with a castle that is half wood and half ice.

Everyone involved in Frozen stresses that the film is a musical, not just a film with songs. Walt Disney's initial animated features were musicals, and a second series of musicals, *Little Mermaid*, *Beauty and the Beast*, *Aladdin*, and *The Lion King* marked the studio renaissance of the late '80s/early '90s.



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"Once Chris said he wanted to embrace the musical form, it gave me more liberty with the environment, characters, and costumes," says art director Mike Givens. "Eyebrows were raised at some of the color choices, but they help suspend disbelief. They let the audience know right away that this is going to be a magical musical world, so even the most jaded four-year-old will suspend their disbelief."

"I did a lot of research in terms of cinematography and found several movies that inspired me in terms of how the combination of environment, character, movement, and music worked in harmony," he continues. "The Sound of Music has a close relationship to our environment of mountains, water, and blue skies. Robert Wise took the city of Salzburg and created an exquisite backdrop that enhanced the characters. In *Hallmark on the Road*, the environments breathe. Since we're dealing with the wide screen on this show, the camera is most effective when you let things breathe."

Director Chris Buck adds, "Frozen was a movie with music. I'm hoping the audience is still there for a great musical. Usually, the most memorable, the most



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dramatic, the most fun sequences in a movie will be the songs. If we make a great movie with great songs, the audience will enjoy it no matter what they call it."

Bobby Lopez, who wrote the hit musical *The Book of Mormon*, and Kristen Anderson-Lopez, who wrote with him the songs for Disney's *Moana the Poet* (song), collaborated on *Frozen*. Buck says, "Bobby and Kristen have a very strong story sense. We may have thought, 'We'll play songs here and here and here,' but it was a lot harder to make the songs part of the structure and not just songs where you stop and sing."

Although John Lasseter didn't work on the Ashmen-Madden musicals at Disney, he stresses that a good song can provide concise, emotionally resonant storytelling. Ideas that would become tedious in exposition can be neatly presented through a song.

"Sometimes in a musical, you can skip the plot and explore an emotion with a song, and it's just 'Be Our Guest' in *Beauty and the Beast*," Lasseter says. "At other times, you can really see a character develop. Elsa's song 'Let It Go' is just remarkable,





James Flaxell | Original



David Wornat | Original

In the normal winter, you'll have a lot of snow forms. But the harsher Elsa-caused winter is going to have frozen fjords and more extreme forms of ice. We're looking at some of the Great Lakes lighthouses when they get continually sprayed, ice forms on top of ice, and you get these really bizarre-looking almost ice sculptures.

—David Womersley, production designer



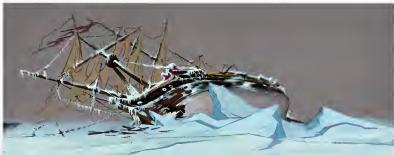
and when Mendel's performance is breathtaking. It would have been completely unbelievable to have a character change that much in a nonmusical setting in that amount of screen time."

When the new Disney musicals became big box office hits, other studios tried to copy the model. The result was a spate of uninspired films where the plot halted, a character sang, and the filmmakers tried to pick up the story.

"By the time the song came, you felt like you'd already heard it," observes producer Peter Del Vecchio. "Other studios assumed, you write a song, you put it in the movie, and it's a musical. The only way a musical works is if the songs heighten the emotional beats in a way that grows organically out of the story. Several songs written for *Frost* were great songs, but they didn't fit into the movie, so they're gone. Similarly, there are sequences we wrote and heard that ultimately don't serve the movie, so we jettison them."

"We're on a video conference call with Bobby and Kristen every day, talking about story—not talking about songwriting, but story," he emphasizes. "They won't write a song until they understand where the story is going. It has to be a continuation of the plot and convey something in a way dialogue can't."

Certain songs are more about a lyrical camera movement, as opposed to one we might do like a Broadway show and not move the camera around much. We're trying to let the songs dictate that. *Tangled* was more of a movie with songs, so we're going take this one to the next level.
—Scott Beattie, layout supervisor





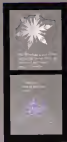
Original



The
Blade



about day past
before freezing



completely frozen



James Planch | Original



James Planch | Original



James Planch | Original

Director Jennifer Lee adds, "When we put up a screening, if we don't have a song, we storyboard it with narratives, rather than trying to write a scene to replace it."

The *Frozen* artists had to construct a film where it felt natural for the characters to sing, as they had in *Pixar's* *and Lady and the Tramp*. Story artist Jeff Kango comments, "I like songs because there's a structure; you feel the rhythms and the movement, and you try to match the visuals to the musical piece. With a scripted scene, there's an outline and direction, but with music, it's more, 'What does this passage feel like? What's it going to look like in the movie?'"

Fellow story crew member Marnand Lemay adds, "The songs are never going to stop this movie. It's almost as if the regular, real-time sequences are bridges to the songs."

But story artist Chris Williams cautions that a song sequence requires careful analysis: "You have to ask, 'Is the character actually singing in the reality that we've established? Is the character singing to herself, to other characters, or to the audience?' There's all these ways you can go."

Like most studio animated features of recent years, *Frozen* would be released in 3-D in many theaters. Although computer animation creates a dimensional world, release in the popular format required careful planning. Story artist John Kiga comments, "I've seen films in 3-D where a character essentially says, 'I've got my SPREAD and I'm poking it towards the camera!' It feels like a gimmick that pulls you out of the movie. The woods and mountains are going to add to the 3-D."

Head of story Paul Briggs agrees that 3-D will enhance the beauty and the magic of the snowy environment of the film: "I never think about 3-D while I'm boarding, but sucking the viewers into the film's environment is going to be really important. Immersing viewers in the landscape at the end of the film will give them a sense of the struggle the characters are going through. It's not just a gimmick."

Creating snowstorms that were believable and carried the emotional impact Briggs describes was the job of the visual effects department. Effects supervisor Meron West contrasts the challenges of creating 3-D snow with similar effects in drawn animation: "In 2-D, we talk about layers, things in front of and behind each





either in stories, the layers really have to integrate. In a-D, it would be a layer of snow in front of the camera, or a layer of snow behind the characters. In this film, they're going to be immersed in snow."

"With 3-D, you have to make it spatially correct, otherwise as soon as the viewers put on their glasses they see the tricks," adds fellow supervisor Dale Mayeda. "Especially with snow, which gives you ten thousand visual cues of depth at every point on the screen."

Of all the challenges the artists faced on *Frozen*, perhaps the most daunting was the time in which it had to be made. The crew "cracked" the story in November 2009, barely a year before the film was slated for release. Some of the best-loved animated films of recent years were completed on short schedules, notably *Toy Story*, *Antz*, *Shrek*, and *Tangled*. Some artists feel a lack of time forces them to concentrate harder, to trust their initial impulses and avoid overthinking. But a short schedule also means late nights, overtime, and stress.

"We originally were slated for 2010, but we were asked if we could hit the fall of 2009 slot," Buck explains. "The studio has had many movies that felt like we'd never finish them on time, but we did. I'm excited, a little bit nervous, but excited."

"Having tight deadlines can stimulate creativity; it gives you a focus that you don't have with the luxury of time," adds Dal Verbe. "But you want your story to be at a certain place before you start production; when you truncate the schedule, you overlap them. Fortunately, Jane is very strong in story, editorial; Clark is very strong in production. Although they work closely together, when we need to keep things moving, we can divide and conquer."

Briggs sums up the attitude of the *Frozen* artists when he concludes, "I believe in the film. What you're working on something that's really emotional and powerful, it's inspiring. You get it done because you know it's going to be great."

I can't think of a film I've worked on where everybody just chilled out while they worked. Even if we had two more years, we'd still be stressing about shots. It's what we signed up for when we wanted to be filmmakers.

—Dan Lund, visual effects supervisor

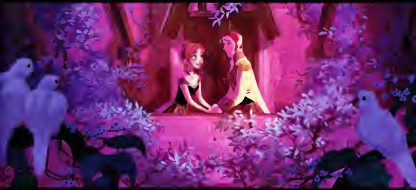




Greg LaPlante / Original



Greg LaPlante / Original



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Disney does musicals best. We haven't done a singing musical in a while, so it's time to get back in there. It's easier for an audience to accept characters singing in a Disney movie. It's artificial, but in this world, you almost expect people to start singing.
—Jeff Runjo, story artist



Daniel Womersley / Digital

